Art. XVI.—*A New Genus and a New Species of Fish from the Mesozoic Rocks of Victoria.*

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(With Plate XIV.)

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The fish dealt with in this communication have been in my hands for some time, and as no fresh material which would shed additional light on their structure is available, I have thought it better to treat what I have, rather than let the interesting fact of the presence of fish in our mesozoic rocks remain longer unrecorded.

Psilichthys, gen. nov.

Body long, slender. Scales absent except on the upper caudal lobe, where they are thick and rhomboidal. Caudal forked. Dorsal partly over anal and partly over the space between the anal and the ventrals. Fulcral scales large and thick; present on both dorsal and caudal. The name refers to the absence of scales on the body generally.

Psilichthys selwyni, sp. nov.

The posterior end only of the fish has been preserved, and shows the tail, part of the anal fin and the origin of the dorsal.

The body is narrow and elongate, the notochord is persistent, and its sheath is not ossified. The neural arches and spines are well developed, and towards the posterior end of the body are inclined at a very low angle to the notochord. The haemal arches and spines are similar to the neural, but the anterior ones are forked at their inner ends. Ribs are absent. The axonosts of the dorsal fin are twice as numerous as the obliquely inclined neural spines, which they do not seem to meet, and they are broadened or, in a few cases, forked at their inner ends. Forking

also occurs at their distal ends. For the most part they are shown merely as grooves in the matrix, but in one instance a hollow cylinder of bone is preserved, showing them to have been fairly well ossified. The baseosts are also ossified, but their relation to the axonosts cannot be clearly made out, owing to the presence of matrix. The supports of the anal, whether axonosts or baseosts is, from the nature of the specimen, uncertain, are also covered with a layer of bone.

The rays of all the fins are jointed, and as shown in the axial line of the tail are branched repeatedly. This branching is not seen elsewhere in the tail, so that very little of the caudal seems missing in the mid line, or in other words the tail is deeply cleft. At first sight the neural spines in the caudal region appear to have the supports of the fulcral scales of the upper edge of the caudal fitted directly on to them, but a thin raised line of ferruginous material cutting across most of them at the same level may perhaps mark a division of the bones, and indicate that the fulcral scales rest not directly on the neural spines, but on a more distal series. There are no scales on the body except on the upper caudal lobe where they are lozenge-shaped on the upperside, and oat-shaped on the lower. Their substance is thick and externally they are doubtfully smooth or very finely longitudinally grooved. The upper border of the caudal is furnished with a single row of large fulcral scales. Smaller fulcral scales are also indicated in front of the dorsal. As the front margins of the other fins are absent, their presence elsewhere is uncertain.

Length from posterior end (broken) of the notochord to the anterior edge of the origin of the dorsal is about 260 mm. Dorso-ventral diameter of the pedicel of the tail about 45 mm., and of the body at the middle of the dorsal fin 70 or 80 mm. The lozenge-shaped scales on the tail measure 5 by 2·5 mm., and the oat-shaped scales 11 by 3 mm.

The specific name is a tribute to Dr. A. R. C. Selwyn, who first geologically examined the district whence the specimen came.

Locality.—Carrapook (Muntham), county of Dundas, Western Victoria. From a tank sunk by Mr. Stock at his house, and forwarded by Mr. J. S. McPherson.

The exact position of the specimen in the zoological series, owing to the imperfect nature of the remains, is somewhat difficult to fix. There seem to be only two families which need to be taken into consideration as affording a possible resting place for our specimen, namely Palaeoniscidae and Chondrosteidae.

In the latter family only one genus, Chondrosteus, is at all well known, and from this our specimen differs in three particulars, namely, it has fulcrals on the dorsal, the dorsal is partly over the anal, and the neural arches are more completely ossified than in Chondrosteus.[1]

These characters might perhaps be regarded as merely generic, and as our fish is naked except on the upper caudal lobe, where thick rhombic scales occur, is devoid of ribs, and agrees in general build with Chondrosteus, it may possibly find its resting place in the same family.

As regards its relationship with the Palaeoniscidae we again find no characters as laid down by Smith Woodward[2] for this family which would prevent its inclusion in it. When, however, we come to its generic position there is no place into which it will fit. Comparing it with our Australian genus Coccolepis, there is the difference in squamation of the body and in the presence of the large fulcral scales both on dorsal and caudal, as well as the difference in the position of the dorsal which forbid their close association.

Leptolepis, Agassiz, 1832.

Leptolepis crassicauda, n.sp.

Distinguishable from the other described Australian species of the genus by the great comparative width of the pedicel of the tail which is one half of that of the body at the front end of the dorsal. The position of the fins is also somewhat different, the dorsal arising slightly in front of the ventrals and not behind them; while the anal arises a little behind the mid-point between the posterior end of the ventral and the caudal. The observable characters agree closely with those of the genus as detailed by

1 A. Smith Woodward, Cat. Fossil Fishes in Brit. Mus., pt. iii., p. 27, pl. i., f. 4.
2 *L. cit.*, Part II., p. 426.

Mr. A. Smith Woodward,[1] though the head and fins, with the exception of the caudal, are wanting. The vertebral column is not fully ossified. The ribs are stout and reach nearly to the ventral border, but their mode of attachment to the vertebral column is not clear. The neural spines in a line with the anterior edge of the anal are stout and clearly united with the neural arches, which in their turn fuse with the centra. In front of this point they are indistinct. The haemal arches and spines are also well developed in the caudal region and broadly expanded at their inner ends. There are no fulcral scales and the rays of the caudal, which is the only fin preserved, are jointed and finely branched. The rudimentary caudal rays shown in Smith Woodward's figures of the Talbragar fish are clearly visible in our specimen. The pelvic bones are laminar and broadened at their inner ends. The posterior end of the vertebral column is bent slightly upwards and there are no hypurals such as occur in the Teleostea. The body was apparently covered with very delicate cycloidal scales, the impression of their internal faces being sculptured with extremely fine, waved, concentric lines. No trace of the substance of the scales is preserved, so they were probably not "ganoid."

Length from anterior edge of origin of dorsal to posterior end of vertebral column 40 mm. Breadth at origin of dorsal 25 mm. Breadth of pedicel of tail 14 mm.

Locality.—Casterton. From the railway cutting on the left bank of the Glenelg. Found by Rev. J. H. MacFarlane, and presented by him to the Ballarat School of Mines.

The only other animal remains recorded from the mesozoic area whence these fossils come is a Unio to which Sir F. McCoy gave the manuscript name of *U. dacombi.*

Sir F. McCoy records *Taeniopteris daintreei (Angiopteridium spathulatum)* from Murundal on the Wannon, and Mr. Dennant mentions an Otozamites as having been identified for him by Mr. R. Etheridge from tufaceous rocks at Mount Koroite.

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[1] The Fossil Fishes of the Talbragar Beds (Jurassic?), Mem. Geol. Surv. N. S. Wales, Palaeontology No. 9, 1895, p. 19.

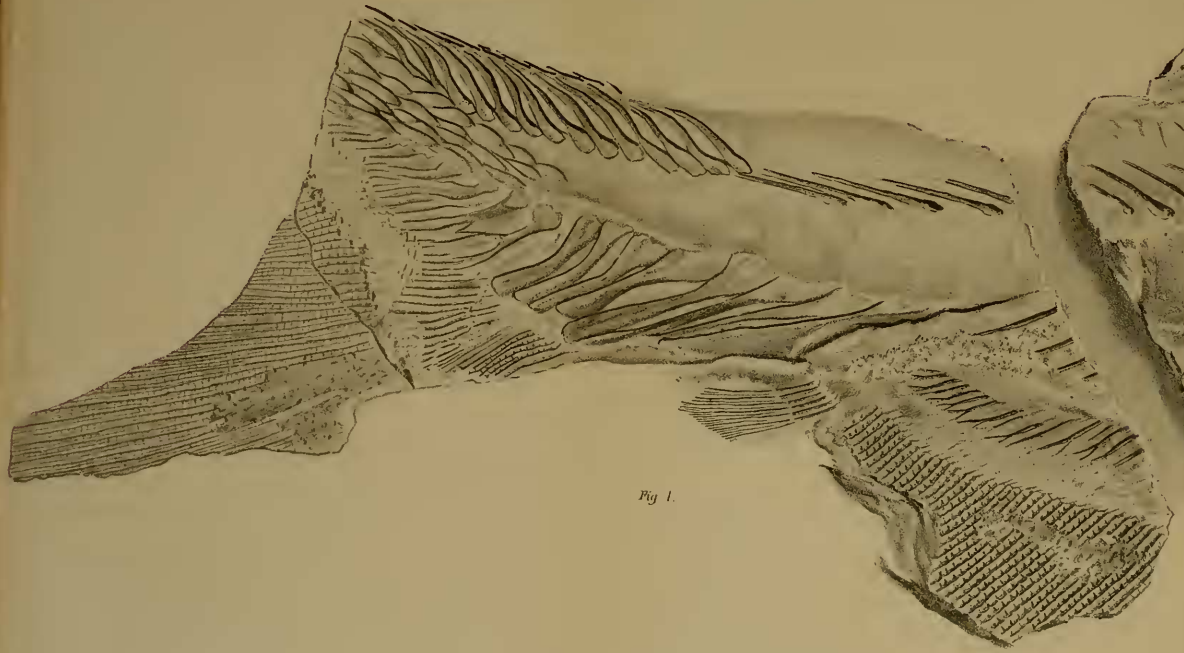

Fig 1.

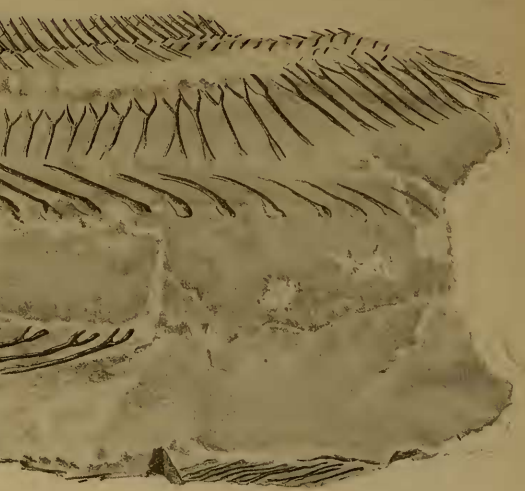

Fig 2

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